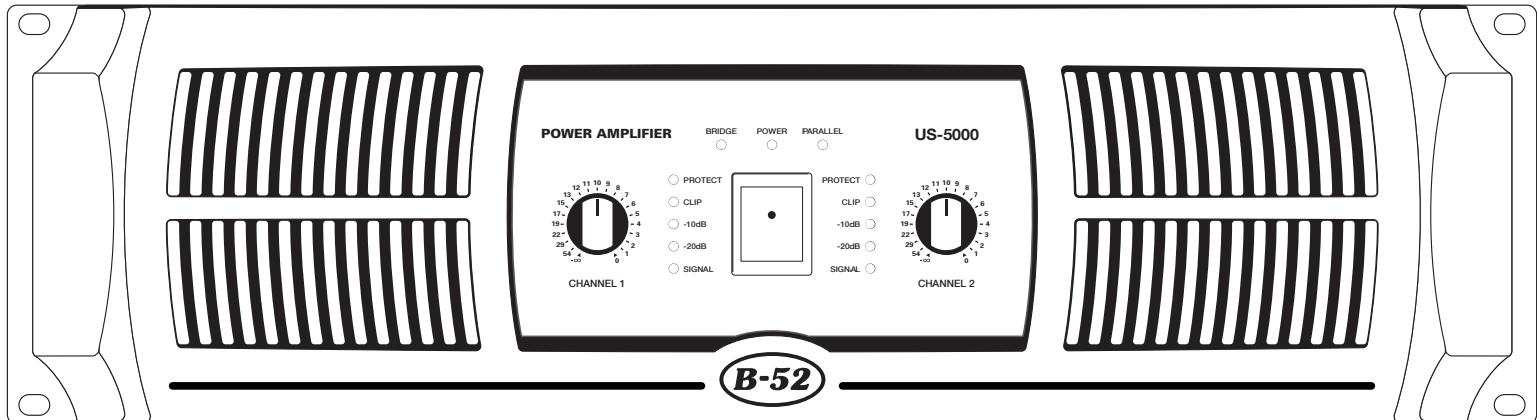


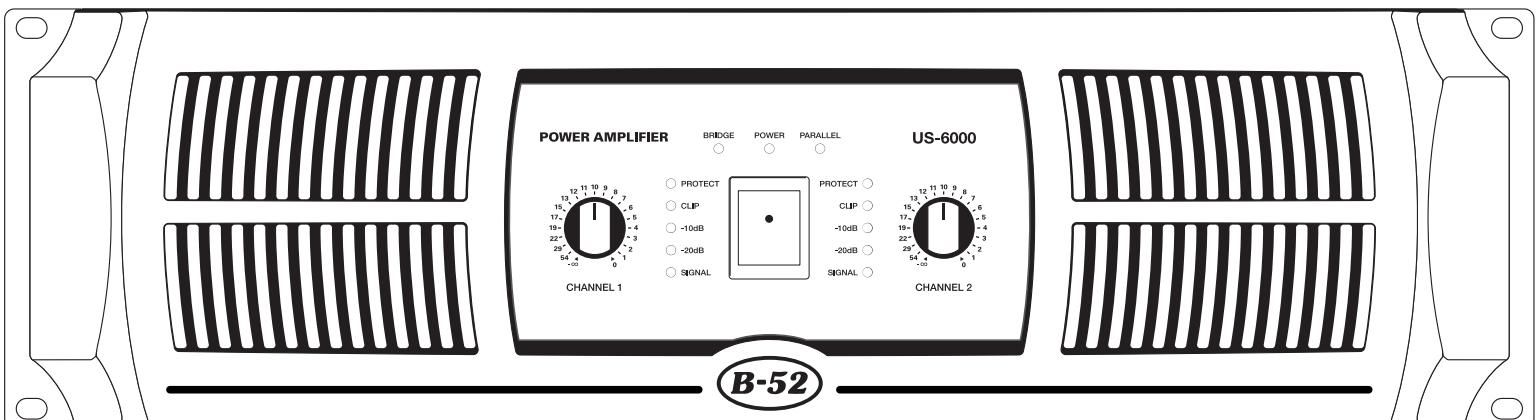


# US-SERIES

## PROFESSIONAL POWER AMPLIFIERS



# US-5000



# US-6000

# OWNERS MANUAL



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# WELCOME TO THE B-52 FAMILY

**Thank you for purchasing a US-Series Professional Power Amplifier.** At B-52, we believe in over-building all of our products and the US-Series Professional Power Amplifiers are no exception. We took our time in designing these stellar looking amps to outperform the competition on any stage, in the clubs and on the road. To achieve studio quality audio reproduction we utilized low noise, low distortion circuitry and high current output stages.

We used oversized toroidal transformers and large filter capacitors to deliver super clean, fist pumping output even when driving a 2 ohm speaker load. These amplifiers use the most reliable linear output devices which provide ultra low distortion and a ruler flat frequency response. The US-Series is backed by our rock solid 3-year warranty and our commitment to reliability known the world over.

It is imperative that you read and understand all of the warnings in this manual regarding proper usage, service and safety. Failing to comply with any of these safety and operation warnings may void your warranty.

For more information about your US Series Amplifier, log on to: <http://www.B-52Pro.com> or call our customer service support hotline (toll free) at 800-344-4384 or (+1) 323-277-4100.

**Thank you again for choosing a US-Series Professional Power Amplifier.**

## Unpacking and Installation

Your US-Series Amplifier is neither complicated to install nor difficult to operate but you must take some time to read this manual to ensure a properly wired installation. You will also need to become familiar with the amplifier's features and how to use them correctly. Please take care unpacking your amplifier; do not throw away the carton and other packing materials. The original box may be needed to move your amplifier and will be required if it becomes necessary to return the amplifier for service. Never place the amplifier near a radiator, in front of heating vents, direct sun light, excessive humid, dusty locations or near water. Connect your amplifier using the system components described in this manual.

# IMPORTANT INFORMATION

Please keep this instruction manual for future reference and for the duration of owning your US-Series Professional Power Amplifier(s). Please carefully read and comprehend the instructions inside this manual before attempting to operate the amplifier.

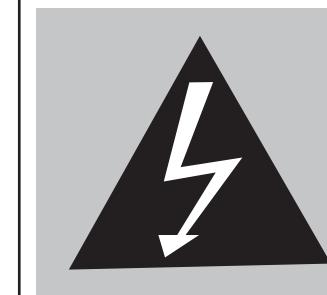
This instruction manual includes essential safety information regarding the use and maintenance of the US-Series Amplifier. Take special care to heed all warning symbols and signs inside this manual and those printed on the unit itself.



## **WARNING**

TO PREVENT FIRE OR SHOCK HAZARD, **DO NOT** EXPOSE THE AMPLIFIER TO WATER OR MOISTURE. DO NOT OPERATE NEAR ANY WATER SOURCE

- 1) Read these instructions.
- 2) Follow all instructions.
- 3) Keep these instructions.
- 4) Heed all warnings.
- 5) **DO NOT** turn on the amplifier before connecting all other external devices.
- 6) Do not use the amplifier near water. Be extra cautious when moving the amplifier during rain or while transporting it over wet surfaces as water might splash onto the unit.
- 7) Clean only with dry cloth.
- 8) Do not block any ventilation openings and operate in accordance with manufacturer's instructions.
- 9) Do not install near heat sources such as radiators, stoves or other devices that may produce heat.
- 10) Do not defeat the safety purpose of the polarization or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.
- 11) Protect the power cord from being walked on or pinched, particularly at the plug and the point where it exits the amplifier.



## **WHAT'S THE MEANING OF THIS?**

The lightning flash with an arrow triangular symbol is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure, and may be of sufficient magnitude to constitute a risk of electric shock



## **WHAT'S THE MEANING OF THIS?**

The exclamation point triangular symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the user manual accompanying the Amplifier.

- 12) Only use attachments / accessories specified by B-52 Professional.
- 13) Unplug the amplifier during lightning storms and when not in use.
- 14) Refer all servicing to qualified personnel. Servicing may be required when the unit has been damaged in any way such as when the power cord or plug is damaged, liquid has spilled into the unit, the unit has been exposed to moisture or rain, does not operate normally, or has been dropped.
- 15) To reduce the risk of fire or electric shock, do not expose the amplifier to rain or moisture.
- 16) Moisture can damage the amplifier and can cause corrosion of electrical contacts.
- 17) Keep the unit out of extended or intense direct sun light. No containers filled with any type of liquid should be placed on or near the amplifier.

## **WARNING**



Handle the power supply cord with care. Do not damage or deform it as it may cause electric shock or malfunction when used. Hold the plug attachment when removing from wall outlet. Do not pull on the power cord.



# IMPORTANT SAFETY PRECAUTIONS

**1. READ INSTRUCTIONS** – All the safety and operating instructions should be read before this product is operated.

**2. RETAIN INSTRUCTIONS** – The safety and operating instructions should be retained for future reference.

**3. HEED WARNINGS** – All warnings on the amplifier and in the operating instructions should be adhered to.

**4. FOLLOW INSTRUCTIONS** – All operating and use instructions should be followed.

**5. WATER AND MOISTURE** – The amplifier should not be used near water - for example, a bathtub, washbowl, kitchen sink, laundry tub, wet basement, or near a swimming pool, and the like.

**6. CARTS AND STANDS** – The amplifier should be moved with a sturdy cart. An amplifier and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the amplifier and cart combination to overturn.



**7. INSTALLATION** – Install in accordance with the manufacturer's instructions and local codes.

**8. HEAT** – The amplifier should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances that produce heat.

**9. POWER SOURCES** – This product should be operated only from the type of power source indicated on the rating label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

**10. GROUNDING OR POLARIZATION** – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

**11. POWER CORD PROTECTION** – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to the cord in correspondence of plugs, convenience receptacles, and the point where they exit from the amplifier.

**12. CLEANING** – The amplifier should be cleaned only as recommended by the manufacturer. Clean by wiping with a cloth slightly damp with water. Avoid getting water inside the amplifier.

**13. NON-USE PERIODS** – The power cord of the

amplifier should be unplugged from the outlet when left unused for a long period of time.

**14. OBJECT AND LIQUID ENTRY** – Care should be taken so that objects do not fall and liquids are not spilled into the amplifier through openings.

**15. DAMAGE REQUIRING SERVICE** – The amplifier should be serviced by qualified service personnel when:

- A. The power-supply cord or the plug has been damaged; or
- B. Objects have fallen, or liquid has been spilled into the amplifier; or
- C. The amplifier has been exposed to rain; or
- D. The amplifier does not appear to operate normally or exhibits a marked change in performance; or
- E. The amplifier has been dropped, or the chassis damaged.

**16. SERVICING** – The user should not attempt any service to the amplifier beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

**17. VENTILATION** – Slots and openings in the amplifier are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless

proper ventilation as per the manufacturer's instructions have been adhered to.

**18. GROUNDING** – Always maintain reliable grounding of the rack and all equipment installed in the rack.

**19. POWER** – The power switch in your amplifier is not an all-pole AC switch. You must physically disconnect AC power cord from either amplifier or AC outlet to fully disconnect it from AC mains. Make sure you have access to the power cord if you need to disconnect it in case of emergency.

**20. LIGHTNING** – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.

**21. REPLACEMENT PARTS** – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

**22. SAFETY CHECK** – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.



**CAUTION**  
DO NOT OPEN  
RISK OF ELECTRIC SHOCK



**CAUTION:** To reduce the risk of electric shock, do not remove any cover. No user-serviceable parts inside. Refer servicing to qualified service personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.

**CAUTION**

To prevent electric shock, do not use a polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.



## POWER RATINGS AT A GLANCE

	US-5000	US-6000
Rated Output Power	STEREO BOTH CHANNELS DRIVEN	
8 Ohms	900 watts	1150 watts
4 Ohms	1500 watts	1900 watts
2 Ohms	2150 watts	2750 watts
Rated Output Power	BRIDGED MONO	
8 Ohms	3000 watts	3800 watts
4 Ohms	4300 watts	5500 watts

Both channels driven @ 1kHz, 1%THD



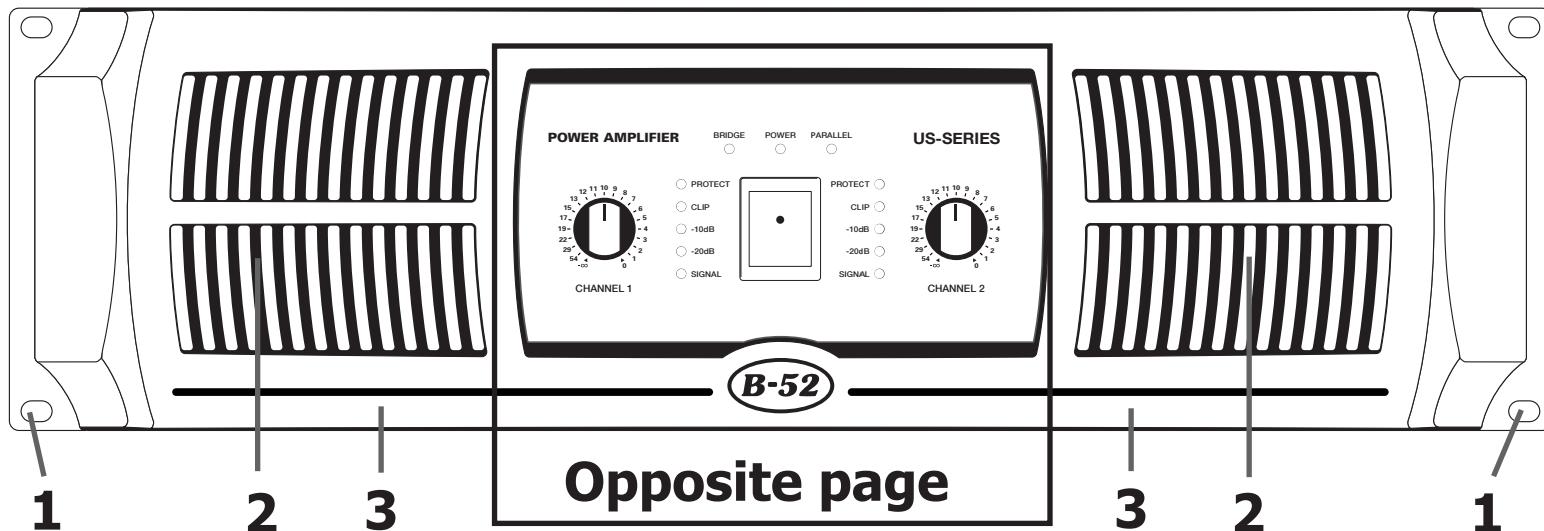
# AMPLIFIER FEATURES

The latest additions to the industry-proven US-Series are two professional 3U heavy-duty power amplifiers for the most challenging applications. The US-5000 and US-6000 are built on a rugged, heavy gauge 3U steel chassis with a sturdy aluminum front panel. The amplifiers use advanced circuitry and a well-designed PCB layout to ensure quality sound and enhanced reliability. Large dual aluminum heatsinks and an oversized toroidal transformer, combined with comprehensive protection circuitry and dual large variable speed fans provide worry-free and reliable operation in the most demanding environments.

- Up to 5500 watts in densely packed 3U enclosure
- Rugged heavy gauge steel enclosure with sturdy aluminum front panel for stability and increased longevity
- High-current toroidal transformers for increased 2-ohm power output
- 21-position gain control knobs for consistent settings
- Selectable STEREO, PARALLEL MONO and BRIDGED MONO modes for flexibility
- Front panel LED display: POWER, BRIDGE and PARALLEL LEDs and SIGNAL, -20dB, -10dB, 0dB, CLIP and PROTECT LEDs for each channel
- Protection: Short circuit, output current limiting, thermal, DC offset, turn on/off muting, RF protection and circuit breaker
- Defeatable clip limiters to reduce distortion without sacrificing peak performance
- Defeatable 30/50Hz sub-sonic filters to protect speakers and increase headroom
- Balanced combo XLR and 1/4" TRS input connectors and link XLR output connectors
- Both binding posts and Speakon™ output connectors
- Low-noise cooling fans with continuous variable speed and highly efficient front-to-rear forced air cooling design
- Replaceable open cell foam air filters with easy access through front panel
- Dimmable blue LED strips on front panel
- Soft start circuit to reduce in-rush AC current



# FRONT PANEL CONTROLS



**Opposite page**

## 1. RACK MOUNTING POINTS

Points to bolt your amplifier into a rack.

## 2. AIR VENTS

US-Series amplifiers are cooled by two rear-mounted fans (US-1200 has one fan) and open cell foam filters mounted behind the front vents.

**CAUTION:** Never block the front or rear vents and keep them clean at all times.

**NOTE:** Periodically clean the foam filters using a vacuum cleaner to avoid dust from blocking the vents. If the filters become too dusty, it may decrease your amplifier's ability to dissipate and remove heat efficiently. If the filters become too dusty and too difficult to clean externally, you can access the filters and remove them for cleaning. Refer to the cleaning procedure later in this manual.

## 3. BLUE ILLUMINATED STRIPS

These two blue illuminated strips glow when your amplifier is turned ON.

**NOTE:** You can dim the blue LED strips or turn them off when convenient in a fixed installation.

## 4. CHANNEL 1 AND CHANNEL 2 LEVEL CONTROLS

Use these 21-position detented controls to adjust the output levels of Channel 1 and Channel 2. When the LEVEL controls are set fully counter-clockwise, the signal is attenuated by more than 80dB (marked  $-\infty$ ).

When the LEVEL controls are set fully clockwise, the signal is amplified with maximum gain. When the LEVEL is set fully clockwise, the amplifier produces its rated output power at a 4 Ohm load with +4dBu (1.23Vrms) signal applied to the inputs. All detents are marked in dBs showing the attenuation of the output signal with reference to the fully clockwise position.

**NOTE:** In PARALLEL MONO mode, both of the Channel 1 and Channel 2 LEVEL controls are used to adjust the signal level for their respective channels. The signal should be routed only to the Channel 1 input in this mode.

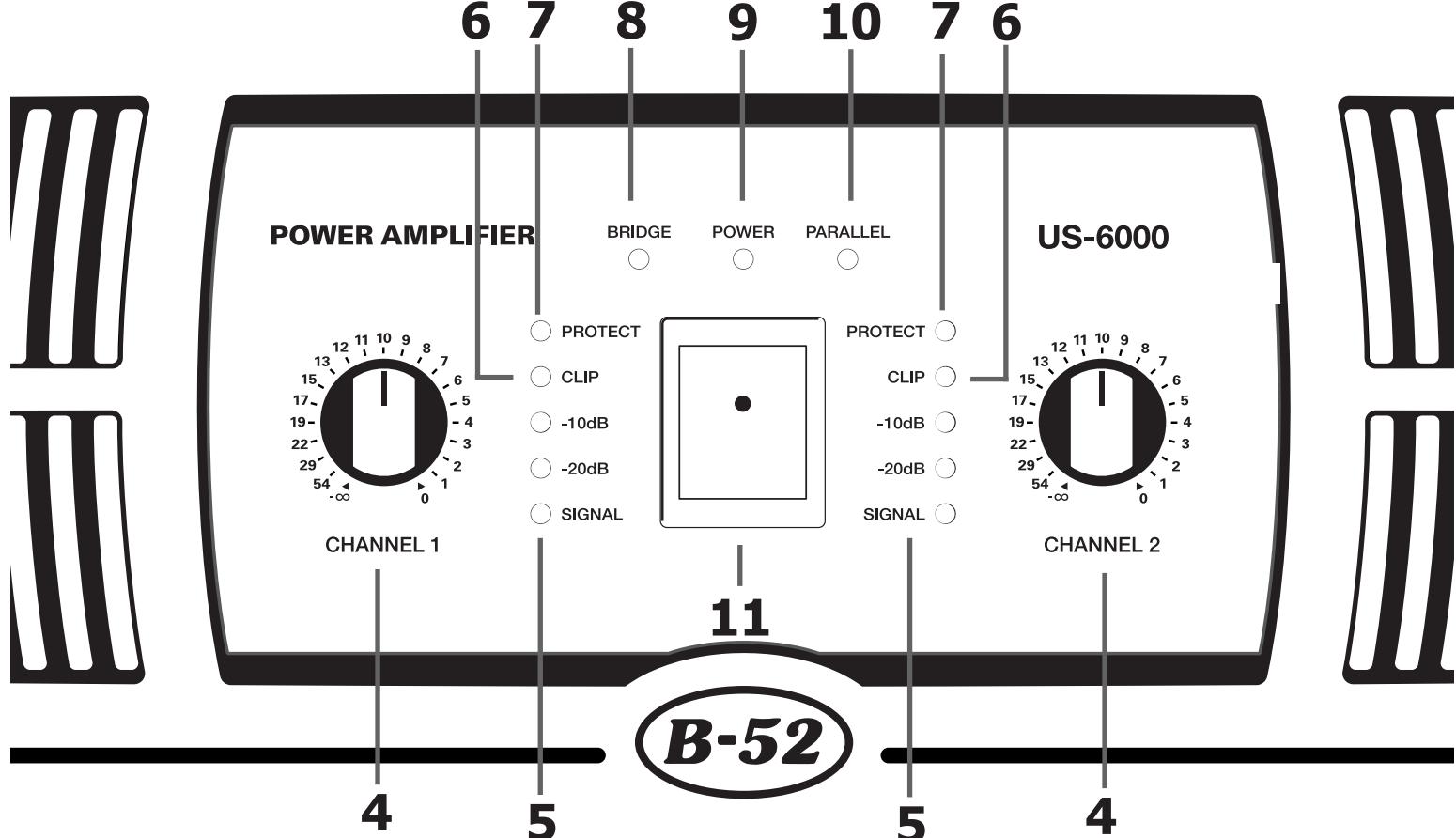
**NOTE:** In BRIDGED MONO mode, only the Channel 1 LEVEL control is used to adjust the signal level. The signal should be routed only to Channel 1's input in this mode.

## 5. SIGNAL Indicators

These green LEDs will illuminate indicating that a signal is being received through the input and that the signal is being amplified. There are three LEDs on each channel: SIGNAL, -20dB and -10dB.

## 6. CLIP Indicators

These red LEDs will illuminate at the clipping threshold. If the CLIP LEDs light frequently, you are overloading the amplifier, causing gross distortions on the outputs. Heavy clipping is bad for both your speakers and amplifiers and should be avoided.



Reduce the output volume using the specific channel's level controls until the clipping disappears or until the CLIP LEDs flash only occasionally.

## 7. PROTECT INDICATORS

These yellow LEDs indicate that the channel is in either PROTECT mode or MUTE mode. When the channel goes into protect mode its output will turn OFF. This is to protect the speakers connected to that channel.

**NOTE:** The protect LED will light when the heatsink is overheating. Once the affected channel's heatsink cools down, the output signal will automatically resume and the PROTECT LED will turn OFF. Constant triggering of the thermal protection indicates blocked vents, dusty air filters, possible low load condition, or problems with your speakers or cables.

**NOTE:** The PROTECT LEDs will illuminate for about two to three seconds when the amplifier is powered ON and they will fade slowly when the amplifier is powered OFF. This indicates your amplifier is going through a transition process and the outputs are muted.

**WARNING:** If the PROTECT LEDs illuminate constantly and don't turn OFF, even when the speakers are physically disconnected from

the amplifier's outputs, this indicates a fault. Immediately turn the amplifier OFF, disconnect the power cord from the AC outlet, and refer the amplifier to service personnel. Authorized B-52 service centers are listed at [www.B-52Pro.com](http://www.B-52Pro.com)

## 8. BRIDGE LED

This green LED illuminates when the MODE switch on the rear panel is set in the BRIDGE position. Use the Channel 1 LEVEL control to adjust the output volume in BRIDGE MONO mode; the Channel 2 LEVEL control is inactive in this mode.

## 9. POWER LED

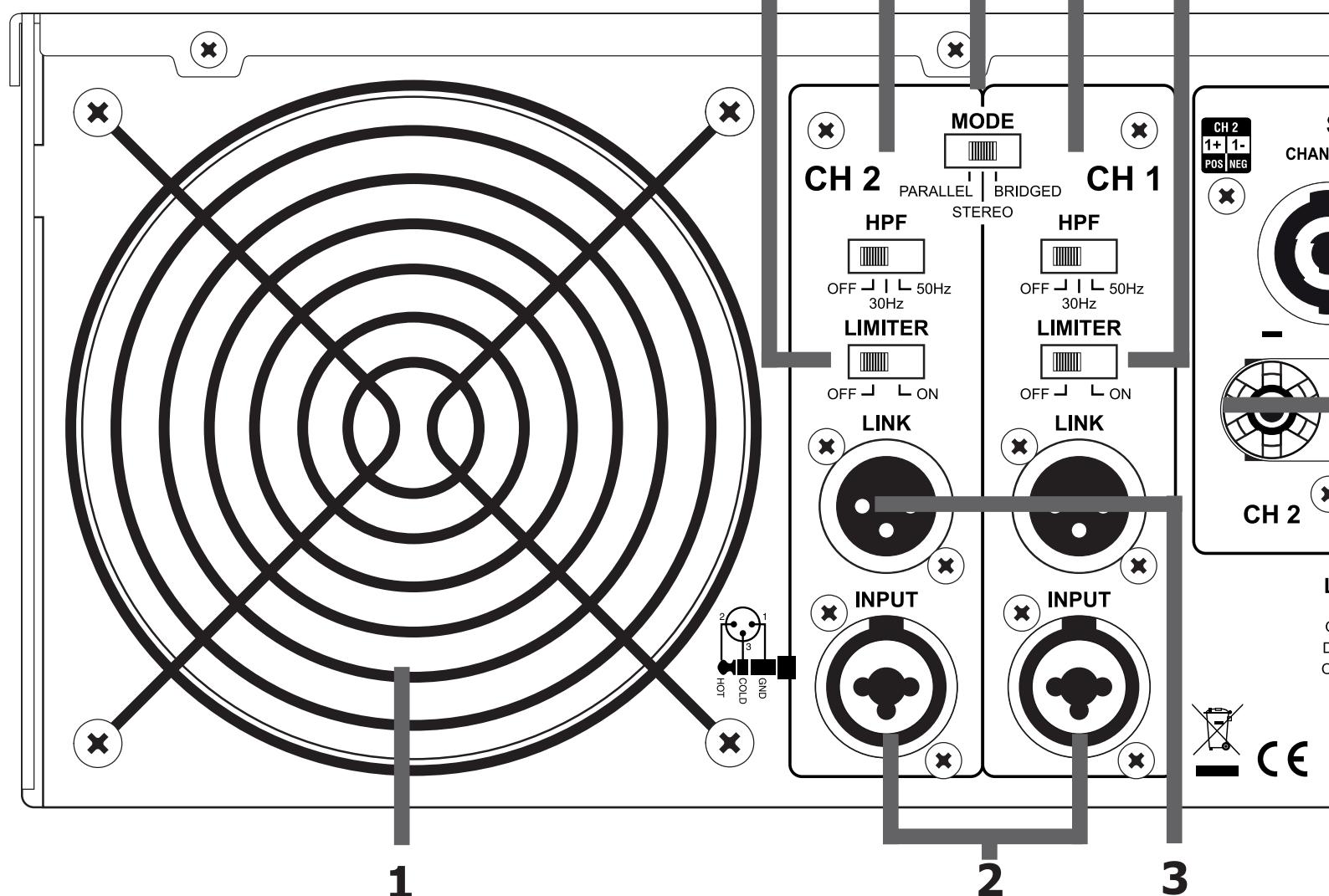
The blue LED will illuminate when your amplifier is turned ON.

## 10. PARALLEL LED

This green LED illuminates when the MODE switch on the rear panel is set to PARALLEL. Use the Channel 1 LEVEL control to adjust the output volume of Channel 1 and the Channel 2 LEVEL control to adjust the output volume of Channel 2, even though both channels amplify the same signal connected to the Channel 1 input.

## 11. AC POWER SWITCH

Use this switch to turn your amplifier ON or OFF.



## REAR PANEL CONTROLS

### 1. FANS

Cooling fans with variable speed controls. Air enters the amplifier through vents located on the front aluminium panel. Do not block the front vents or the fans on the rear panel of the amplifier.

### 2. INPUT CONNECTORS

Connect the input source to these electronically balanced Combo connectors using either XLR or 1/4" TRS plugs. The 1/4" TRS and XLR plug are configured: Pin 2 (Tip) - hot, Pin 3 (Ring) - cold, and Pin 1 (Sleeve) – shield/ground. We recommend using balanced three-conductor cables. A stereo signal should be connected to both the Channel 1 and Channel 2 input jacks for 2-channel (stereo) operation.

**NOTE:** Unbalanced two-conductor 1/4" plugs

can also be inserted into these input Combo connectors. But using unbalanced connectors may increase noise and hum. See more information about balanced and unbalanced connections in the CONNECTIONS section later in this manual.

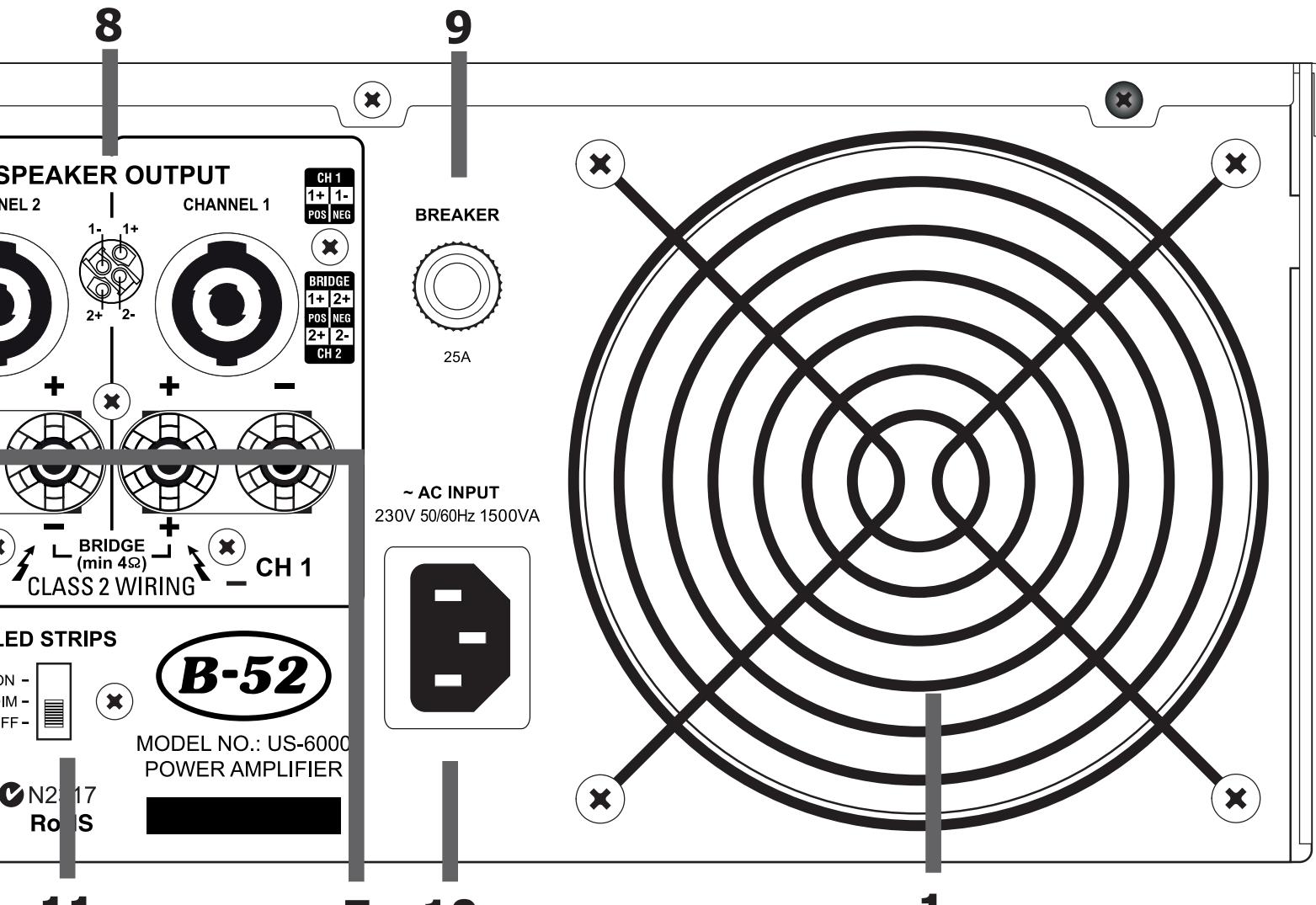
**NOTE:** For BRIDGED MONO or PARALLEL MONO use the Channel 1 input jack only.

### 3. LINK CONNECTORS

These XLR jacks are used to send a signal to a separate amplifier (chaining). The LINK XLR jacks are connected in parallel to the input Combo jacks.

### 4. HPF (HIGH PASS FILTER) SWITCH

Use these slide switches to activate the built-in High Pass filters. The HPF rolls off signals below 30Hz



or 50Hz, based on the position of the switch. This improves the bass performance of most full range speakers (50Hz) and subwoofers (30Hz) by reducing uncontrolled and excessive speaker cone motion. Engaging the HPF switch when using full range speakers makes more power available to the speaker's rated frequency range, leading to higher SPLs. Engaging 30Hz HPF with subwoofers helps to control cone excursion leading to cleaner and louder bass.

#### 5. LIMITER SWITCH

When the sound source signal is too high, the output signal will distort. To prevent this, both channels feature clip limiters to prevent gross distortions on the outputs. It is recommended to avoid clipping but if it does occur, the clip limiters will greatly reduce the amount of distortion and stress on your speakers and amplifier. It is recommended to keep these switches in the ON position as this will result in better sound and

increase the life of your loudspeakers.

#### 6. BRIDGE / STEREO / PARALLEL SWITCH

Use this switch to change the amplifier's operating mode to STEREO, BRIDGED MONO or PARALLEL MONO. Set this switch to the STEREO position for normal stereo, or 2-channel operation.

When set to PARALLEL, the input signal connected to channel 1 is routed to both channels. The PARALLEL MONO mode is convenient when running a long mono signal cable to a remote power amplifier(s), and then connecting speakers to both of the channels in order to reproduce the same signal. In PARALLEL mode the input of channel 2 is inactive and should not be used in this configuration.

In the BRIDGED position, the mono input signal connected to channel 1 is routed to both the right and left amplifier channels, yet in this mode the speaker is connected between the two channels' hot outputs and



# REAR PANEL CONTROLS (cont.)

is not referenced to the ground. In this mode the channel 2 input is inactive.

**NOTE:** See the CONNECTIONS section later in this manual for more details on PARALLEL MONO and BRIDGED MONO modes.

**WARNING:** DO NOT change settings of the BRIDGE / STEREO / PARALLEL switch when amplifier is ON. Always turn amplifier OFF and connect output cables and input cables appropriately first, then set the switch in desired position BEFORE turning amplifier back ON.

**WARNING:** DO NOT change settings of the BRIDGE / STEREO / PARALLEL switch when amplifier is ON. Always turn amplifier OFF and connect output cables and input cables appropriately first, then set the switch in desired position BEFORE turning amplifier back ON.

## 7. BINDING POST OUTPUTS

Use the binding posts to connect your loudspeakers to the amplifier. Binding posts are a good option for fixed installations or when you do not have Speakon fitted speaker cables. The high-quality insulated binding posts offer a variety of connection options. Use speaker wires with stripped ends (do not strip them more than  $\frac{1}{2}$ " or 12.5mm), using the holes on the bottom of the binding posts. Ensure that no part of the speaker wire is exposed when connected to the binding posts. Alternatively, you can also use speaker cables terminated with standard banana plugs. Make sure that no part of speaker wire or banana plugs are exposed when connected to the binding posts.

**NOTE:** US-Series amplifiers configured for use in Europe are provided with permanent plastic inserts which prevent using banana plugs for speaker connection. This is a safety measure required by European safety laws.

**NOTE:** In the BRIDGED mode, the loudspeaker must be connected using the two red binding posts. The positive (+) wire from the loudspeaker must be connected to the Channel 1 red post, and negative (-) wire from the loudspeaker must be connected to the Channel 2 red post, as indicated on the rear panel just below the binding posts.

**WARNING:** NEVER CONNECT speakers with

an impedance lower than the rated minimum impedance of the amplifier. The lowest impedance in STEREO and PARALLEL modes is 2 Ohms for each channel. The lowest impedance in BRIDGED mode is 4 Ohms. NEVER CONNECT 2 Ohms rated loudspeaker(s) or a combination of speakers to the amplifier in the BRIDGED mode.

**NOTE:** Refer to the CONNECTIONS section later in this manual for speaker wire connection diagrams.

## 8. SPEAKON™ OUTPUT CONNECTORS

Use these speaker outputs to connect cables fitted with Speakon™ cable connectors. US-Series amplifiers have two connectors, one for each channel, to connect Speakon™ fitted cables. The 1- pin is connected to the ground. The 1+ pin is connected to the output of each channel, which is an industry standard.

You can connect both channel 1 and channel 2 loudspeakers to the Channel 1 output connector. To do this a quad speaker cable must be used. The Channel 1 speaker should be connected to pins 1-/1+ and the Channel 2 loudspeaker is connected to pins 2-/2+.

You can use the Channel 1 output connector for BRIDGE connection of your loudspeakers (when the amplifier is in BRIDGE mode). In this configuration the loudspeakers connected must use the 2+ pin of the connector for the loudspeaker's ground connection (NOT CONNECTED TO THE GROUND OF AMPLIFIER) and pin 1+ for the speaker's HOT connection.

**NOTE:** Match the pin designations printed next to the output connectors on rear panel to ensure proper connections.

## 9. CIRCUIT BREAKER

The circuit breaker protects the amplifier from faults at the AC supply and serves as protection when the amplifier fails. If the circuit breaker trips, cutting AC power supply to your amplifier, it may indicate a serious malfunction or failure. Wait for the circuit breaker to cool before resetting it by simply pressing the reset knob. If the circuit breaker repeatedly trips, especially when there is no signal on the inputs or outputs, this indicates a failure of your amplifier. DISCONNECT the power cord from the wall AC outlet immediately



and contact an authorized B-52 Service Center. There are rare instances when the circuit breaker acts on a constant heavy overload with a very low impedance load connected to amplifier, protecting your amplifier against such improper usage. In such cases you need to check and correct your load (loudspeakers) to provide for the proper load impedance, and/or reduce output signal.

## 10. AC INPUT

US-5000/6000 amplifiers are factory preconfigured for either 120V or 230V AC voltage, based on where they are sold. 120V models are fitted with a fixed heavy AWG12 cord to provide high current consumption without losses and deliver power peaks without sags.

**NOTE:** US-6000 120V amplifier's cord is terminated with 20A NEMA plug and must be connected to proper 20A rated AC line. The pins on this 20A rated plug are oriented differently than on a standard 15A

rated plug, and will not fit into standard 15A rated wall AC outlet.

**WARNING:** Never cut off 20A rated AC plug to replace with different plug; it will represent safety hazard.

**NOTE:** 230V models are equipped with a standard IEC connector on rear panel and supplied with heavy gauge AC power cord appropriate with country of sale.

**NOTE:** Never disconnect the EARTH pin from the AC connection. It will defeat safety measures used in your power amplifier and void the warranty.

## 11. LED STRIPS SWITCH

The LED STRIPS switch allows you to turn blue LED strips lights on front panel ON, OFF or dim them half-way. This gives you flexibility for installations where you may want to control lights.

# PROTECTION

US-Series amplifiers feature comprehensive protection circuitry that protects both the loudspeakers and the electronics from malfunctioning. The protection is non-intrusive, sonically transparent and does not affect the sound unless there are extreme conditions that activate the protection circuitry.

The PROTECT LEDs on the front panel illuminate when the protection is active during the power-up sequence, when thermal protection is activated, or when there is a malfunction. When the PROTECT LEDs are ON, the amplifier's outputs are muted.

**INITIAL POWER-UP:** The protection circuitry will activate for about two to three seconds from the time you turn ON the amplifier. The speaker outputs are muted during this period. If the amplifier is operating normally, the protection circuitry will deactivate and the amplifier will switch to operation mode.

**NOTE:** It is normal for the PROTECT LED to fade gradually after the amplifier is turned OFF.

**THERMAL PROTECTION:** Excessive heat-sink temperatures will engage the thermal protection circuitry to avoid damage to your amplifier. The speaker output will mute and the PROTECT LED will illuminate. Thermal protection only engages on the channel

which has the overheating heatsink. The thermal protection will automatically restore to normal operation mode automatically once the heatsink temperature drops to a safe level.

**NOTE:** If the thermal protection constantly activates, check the impedance of your loudspeakers and the condition of the air filters on front of the amplifier. The loudspeakers impedance must not be lower than what is specified in this manual for 2-channel and BRIDGE operation. 8 Ohms and 4 Ohms speaker loads per channel (8 Ohms and 16 Ohms in BRIDGE mode) should not trigger the thermal protection circuitry if the air access is not blocked and the air filters are clean. 2 Ohms speaker loads per channel (4 Ohms in BRIDGE mode) can cause the thermal protection circuitry to activate occasionally. If this occurs, decrease the signal level and consider reconnecting the speaker connections to reduce the load on the amplifier (for example, do not connect too many speakers in parallel to the same channel).

**NOTE:** Make sure there is adequate air access to the amplifier. Do not block the air vents on



the front and do not block the fans on the rear panel. Make sure the open cell foam air filters behind the vents on the front of the amplifier are clean. If necessary, use a vacuum cleaner to clean these air filters.

**NOTE:** If the air filters become too dirty, the amplifier may not operate normally as air circulating inside the amplifier may become too hot, thereby triggering the thermal protection. To clean or replace air filters, first locate plastic levers on front panel behind aluminum handles. Pull out plastic frames holding air filters. Carefully split plastic frames in two parts and remove the filters. After cleaning filters, put them back into plastic frames and install back to the amplifiers. **MAKE SURE TO CLEAN AIR FILTERS PERIODICALLY TO ENSURE PROPER OPERATION OF YOUR AMPLIFIERS.**

Refer to the diagram on how to remove and install the air filters.

**TRANSFORMER THERMAL PROTECTION:** If the power transformer gets too hot, the thermal switch inside the transformer will trigger and will disconnect all of the secondary power. When this occurs, there will be no output signals coming from the amplifier and all LEDs, including the PROTECT LED, will be OFF. Once the transformer cools down, power to the amplifier will automatically restore. In normal conditions, the transformer will not overheat. Thermal protection of the transformer indicates abnormal use, such as excessive operation at a very low impedance at high signal levels. In this case, check and reconfigure your loudspeakers connection. Reducing the output level can also help.

**NOTE:** If the transformer overheats and the thermal switch disconnects the power from the amplifier, it will take some time for the transformer to cool down before power is restored. It takes much longer for the transformer to cool down compared to overheated heatsinks.

**SHORT CIRCUIT:** If the output is shorted because of faulty wiring, the thermal circuitry will automatically protect the amplifier and mute the output signals. If this occurs, the load will disconnect. Check and correct the short wire condition.

**DC VOLTAGE PROTECTION:** If an amplifier channel detects a DC voltage at the loudspeaker output, the protection circuitry will trigger and the amplifier will go into protection mode. In normal conditions there should not be a significant DC signal on the amplifier outputs. DC on the outputs indicates a serious problem with the amplifier. In this instance, the amplifier must be referred to qualified service personnel.

**SUBSONIC FREQUENCY PROTECTION:** Built-in high-pass subsonic filters provide subsonic frequency protection for each channel. This protection prevents subsonic audio signals, which may sometimes be present in the music program, from reaching your loudspeakers. Limiting the subsonic frequencies in the output signal improves the sound reproduction by reducing the excursion of the transducer's cone at low frequencies and prevents excessive heating inside of the amplifier.

**NOTE:** US-Series amplifiers also employ switchable high-pass filters (HPF), which limit the low frequency range to 30/50Hz when activated. Turn these HPFs ON and set them at 50Hz when connecting full range speakers to the amplifier. This will improve the bass performance of most full range speakers by limiting uncontrolled and excessive cone motion due to the lowest of frequencies. Using HPFs with full range speakers provides more power to the speaker's rated range allowing higher SPLs. Set the HPF at 30Hz when using the US-Series amplifiers with quality subwoofers.

**CURRENT LIMITING PROTECTION:** The output stage of the amplifier is protected by current-limiting circuitry. This circuitry is inactive under normal conditions. It activates only when it senses a dangerously high current through the output transistors, for example when a connected load has an impedance that is too low, or when the output of the amplifier is shorted. Current limiting protection engages only when it is needed and is not indicated on the front panel. If there is a constant over-current condition it will activate the thermal protection. In this case, the PROTECT LED on the front panel will illuminate.

**CLIP LIMITERS:** US-Series amplifiers have built-in limiter circuitry for improved performance when



overloading. The limiter activates at "clipping" when the output voltage reaches the power supply voltage rails. Without limiters, the output voltage will grossly distort if the signal elevates beyond this point. The signal wave form is flattened ("clipped"), producing excessive high frequency distortion not present in the original signal. This makes music sound "dirty" and increases stress on the high frequency transducers, significantly shortening their life span (most loudspeaker manufacturers will not honor warranties if

high frequency drivers are "burnt" due to a clipped signal overload). Clip limiters effectively solve this problem by compressing the signal at clipping. US-Series amplifiers use intelligent clipping circuitry to protect both the loudspeakers and amplifier.

**NOTE:** B-52 recommends the clip limiter switch remains ON when used with full range speakers. You may choose to turn OFF the limiters when using the US-5000 and US-6000 to power subwoofers.

## SETTING UP YOUR US-SERIES AMPLIFIER

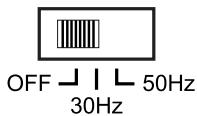
### LIMITER



**CLIP LIMITER:** Clipping is the result of an amplifier running into a power supply limitation. The maximum output voltage that any amplifier can produce is limited by its power supply. Attempting to output a voltage level that exceeds the power supply voltage rails results in a flattening effect of the signal causing it to clip. A clipped waveform exhibits severe distortions, making it sound harsh. The clip limiter detects this condition and reduces the gain to minimize the amount of overdrive. To preserve as much of the program dynamics as possible, the limiter reduces the average program level until the peaks barely clip. Each channel has its own clip limiter and you can switch it ON or OFF. The clip limiter allows brief clipping which is not detectable to the ear. It activates when a clip condition repeats, to avoid prolonged distortion. When driving full-range speakers, clip limiting reduces the high frequency distortion caused by low frequency overload. It also protects higher frequency drivers from excess overdrive and harsh clipping harmonics.

**NOTE:** You may want to keep the limiters OFF when connecting the US-5000 and US-6000 to subwoofers.

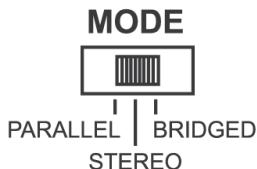
### HPF



**HPF (High-Pass Filter):** High Pass Filters (HPF) are also known as low-cut filters. HPFs on the US-5000 and US-6000 amplifiers can be set to cut off signals below either 30Hz or 50Hz. As a result, bass reproduction is optimized, since ultra-low frequencies, which most speakers cannot reproduce anyway, are eliminated and more power becomes available for the reproduction of the remainder of the music signal.

**NOTE:** You should set the filters to best suit the frequency response of your speakers as some speakers are particularly sensitive to over-excitation. The 50Hz filters on the US-Series amplifiers work well with most full-range speakers and 30Hz settings are well suited for subwoofers.

**NOTE:** For some critical applications you may want to keep the HPF in the OFF position.



## MODE SELECT:

### STEREO MODE

In STEREO mode, both channels operate independently, with their respective input gain controls. Signal at the Channel 1 input produces output at Channel 1, while the signal at Channel 2 input produces output at Channel 2. The minimum load impedance for STEREO operation is 2 Ohms per channel.

### PARALLEL MODE

When set to PARALLEL mode, a signal applied to Channel 1's input will be amplified and appear at both of the Channel 1 and 2 outputs. The level control knobs will operate on their respective channels. Channel 2's input is inactive in the PARALLEL mode. The PARALLEL mode is well-suited for applications when you need to feed two speakers with the same signal but each speaker is powered by its own amplifier channel. Minimum load impedance for PARALLEL operation is 2 Ohms per channel.

### BRIDGED MONO MODE

Bridged mono mode combines both amplifier channels to make a powerful single-channel amplifier. One channel "pushes" and the other channel "pulls" the signal equally, doubling the voltage. When the voltage is doubled, the power is quadrupled if the same impedance load is used.

In a BRIDGE mode, the signal must be applied to Channel 1's input only and Channel 1's gain control is used to adjust the signal level. The gain control of Channel 2 is not used and input 2 is inactive in BRIDGE mode.

**NOTE:** Minimum load impedance in BRIDGE mode is 4 Ohms. Connecting a lower impedance load to the amplifier in the BRIDGE mode may trigger the protection circuitry. In some instances it may cause severe damage to the amplifier, which is not covered by the warranty.

**WARNING:** MAKE SURE THE IMPEDANCE OF THE SPEAKERS CONNECTED IN A BRIDGE MODE ARE NOT LOWER THAN SPECIFIED!!!

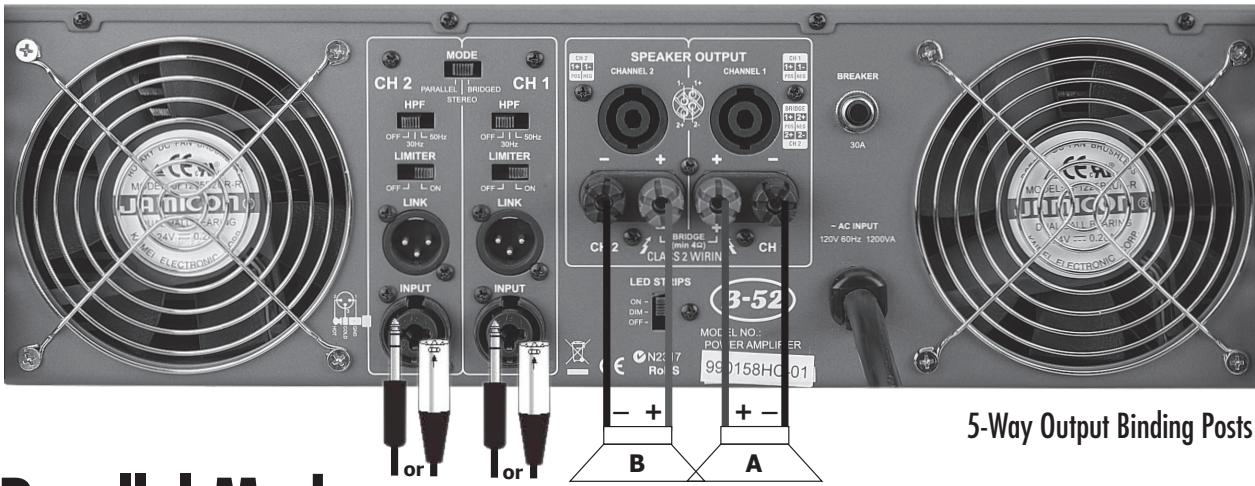
**WARNING:** Do not connect two 4 ohms subwoofers in parallel in BRIDGE mode, as the total impedance halves in such a parallel connection. The total impedance will be 2 ohms, and will cause constant overheating and distortion of amplifier. It will also cause constant triggering of the AC circuit breaker and could damage your amplifier.

**NOTE:** In the BRIDGE mode a speaker is connected to both of the channels' outputs and is not connected to the ground of the amplifier on both ends.  
DO NOT ATTEMPT TO GROUND YOUR SPEAKER!



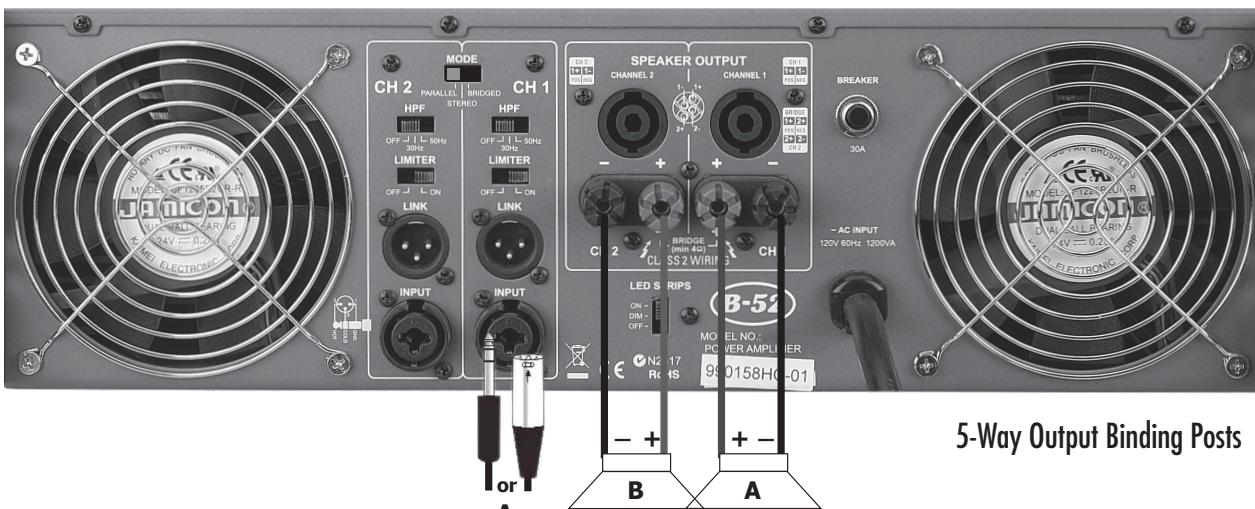
# CONNECTING YOUR SPEAKERS

## Stereo Mode



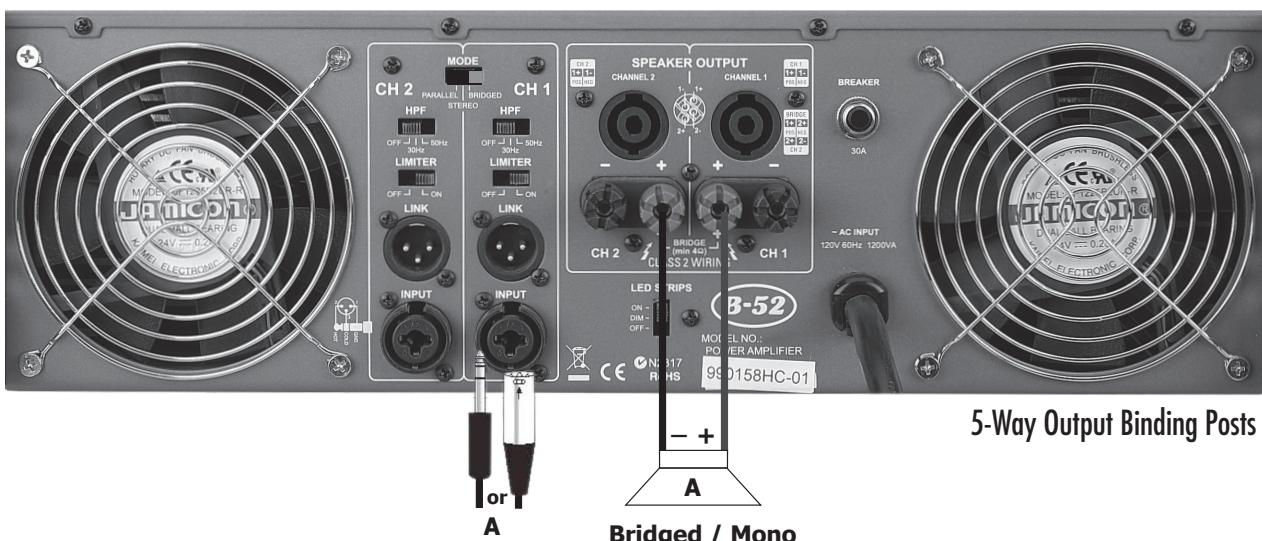
5-Way Output Binding Posts

## Parallel Mode



5-Way Output Binding Posts

## Bridged Mono

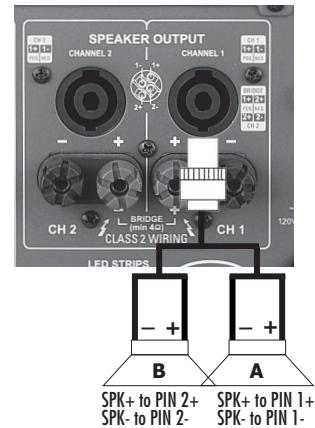
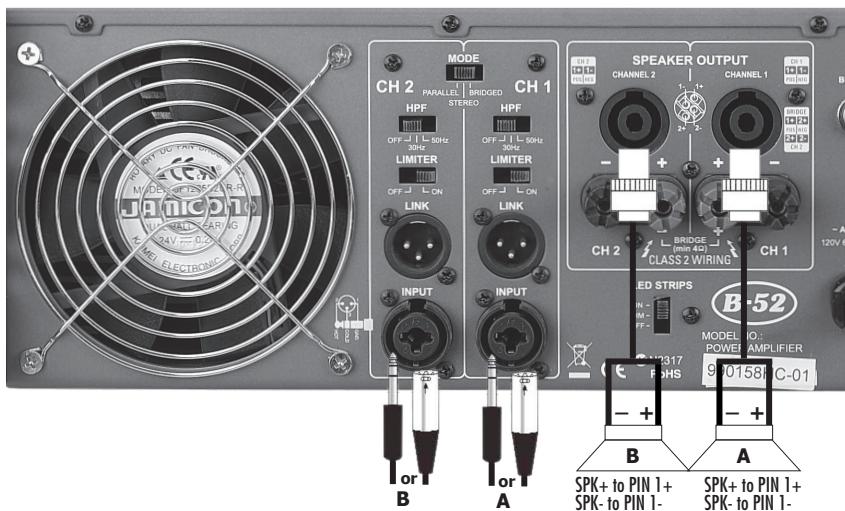


5-Way Output Binding Posts

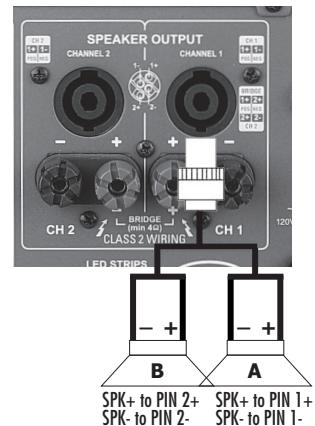
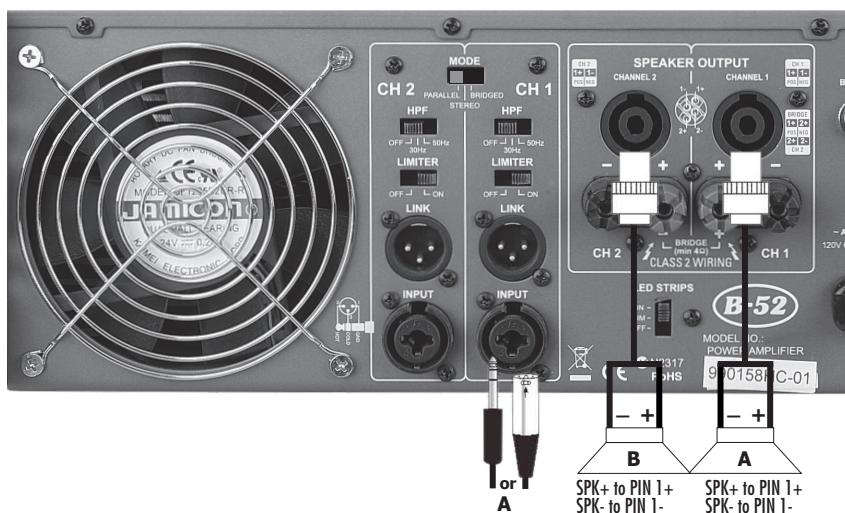
Bridged / Mono



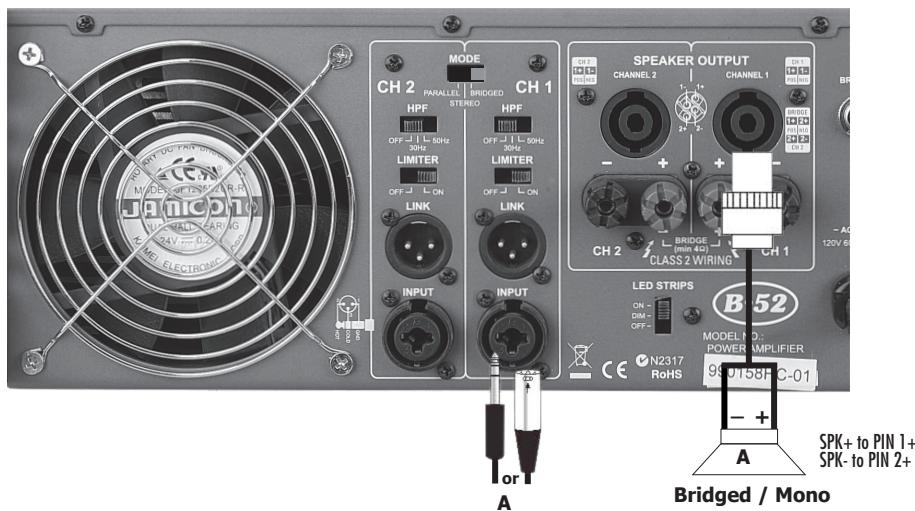
# Stereo Mode



# Parallel Mode



# Bridged Mono



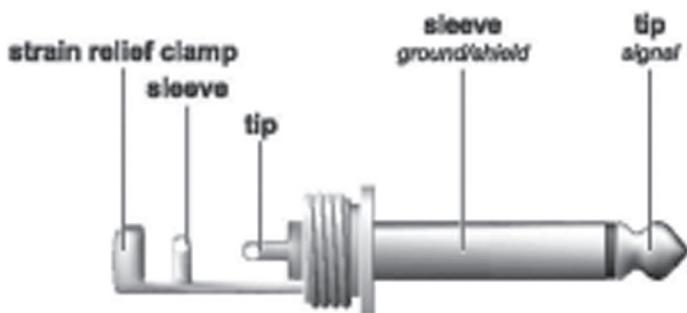


# WIRING

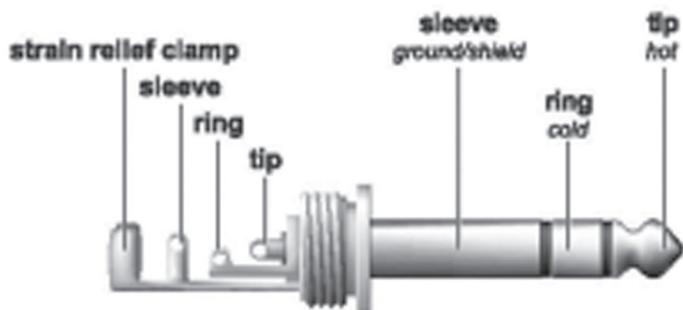
There are multiple ways to connect a US-Series amplifier to other audio equipment. The US-Series features balanced inputs and link outputs, which allows you to connect both balanced and unbalanced signals. For speaker connections, you can use either binding posts or Speakon™ connectors.

**NOTE:** Use speaker wires with the lowest gauge available. The thicker the speaker wires are, the less output signal you will lose. You have chosen US amplifiers that supply very high power to your loudspeakers, and you don't want to sacrifice your system's performance by using inadequate speaker cables.

## UNBALANCED 1/4" CONNECTOR



## BALANCED 1/4" CONNECTOR



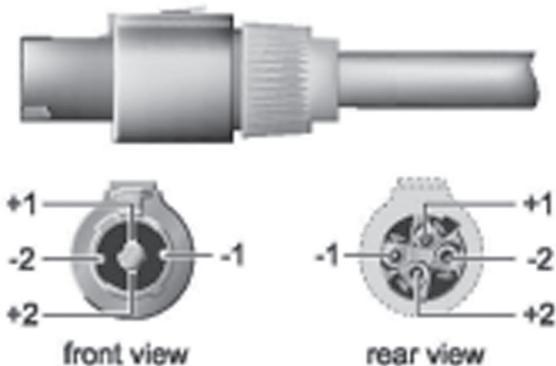
**NOTE:** For connections of unbalanced sources via balanced cables / plugs, the ring and sleeve have to be bridged at the TRS plug.

## XLR Balanced Wiring Guide



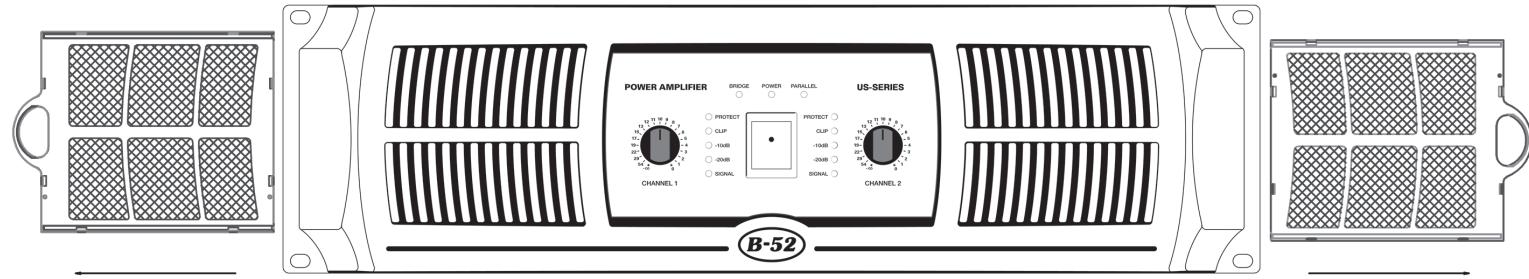
For unbalanced use pin 1 and pin 3 have to be bridged

## SPEAKON™ OUTPUT CONNECTOR



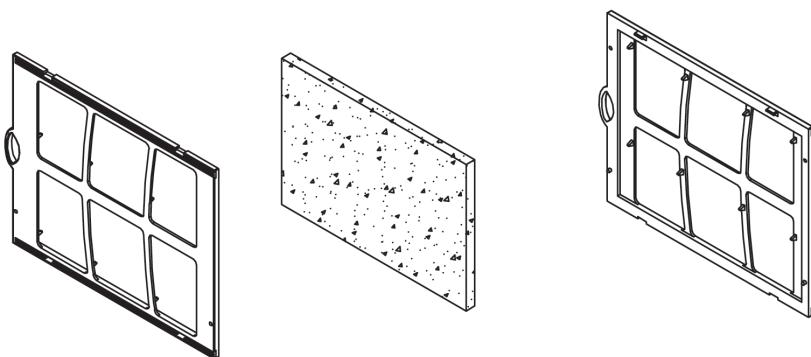


# HOW TO CLEAN THE AIR FILTERS



It is important to keep the US-5000 and US-6000 air filters clean and maintained to ensure the amplifiers operate at maximum efficiency.

1. To remove the air filters simply slide them out using your finger.
2. Open the filter covers (as per below) and clean the filter using a damp cloth
3. Reassemble the filter covers and return them to the slots on either side of the amplifier





# SPECIFICATIONS

	US-5000	US-6000
<b>Rated Output Power</b>	<b>STEREO BOTH CHANNELS DRIVEN @ 1KHZ, 1%THD</b>	
8 Ohms	900 watts	1150 watts
4 Ohms	1500 watts	1900 watts
2 Ohms	2150 watts	2750 watts
<b>Rated Output Power</b>	<b>BRIDGED MONO @ 1KHZ, 1%THD</b>	
8 Ohms	3000 watts	3800 watts
4 Ohms	4300 watts	5500 watts
Input Sensitivity	1.23 Vrms (+4 dBu) for full power @ 4 Ohms	
Input Impedance	30K ohms Balanced/15K ohms Unbalanced	
Frequency Response	0/-0.5dB: 20Hz - 20kHz; 0/-3dB: 5Hz - 60kHz	
Signal to Noise Ratio	Better than 100dB (20Hz - 20kHz)	
Distortion (SMPTE-IM)	Less than 0.03%	
Output Circuitry	3-tier class H	
Cooling	Dual continuously variable speed fans, front to rear	
Protection	Short circuit, thermal, current limit, DC offset, RF protection, AC soft start with inrush current limit, turn on/off muting	
Connectors	Input: Combo female XLR & 1/4" phone jack Link: Male XLR Output: Both 5-way binding post and Speakon™	
Controls	Front: Power on/off switch, volume controls for each channel Rear: Mode switch (stereo / parallel / bridge), HPF 30Hz/50Hz/Off, Limiter on/off, LED STRIPS on/dim/off	
Indicator	Power, parallel, bridge. Each channel: Signal, -20dB, -10dB, clip, protect	
Power Requirements	120/230V 60/50Hz factory configured	
AC current consumption	Both channels driven at 4 Ohm load, at 120Vac (for 230V divide by 2)	
Typical level, 1/8 power pink noise	10.2A	14.2A
Severe level, 1/3 power pink noise	20.4A	27.4A
AC connect	120V: fixed cord - NEMA 5-15 plug 230V: IEC inlet on chassis; power cord with CEE7/7 plug	120V: fixed cord - NEMA 5-20 plug 230V: IEC inlet on chassis; power cord with CEE7/7 plug
Dimensions (W x H x D)	19" (482mm) x 5.25" (132mm) x 19.3" (492mm)	
Net Weight	76.2lb (34.6kg)	81.5lb (37kg)

\* Specifications are subject to change without notice.



# LIMITED WARRANTY

Thank you for choosing the US-Series Professional Amplifiers, a product by E.T.I. Sound Systems, Inc. For purposes of this warranty B-52 shall mean E.T.I. Sound Systems, Inc. B-52 manufactures some of the world's best audio products and takes great pride in thoroughly testing each B-52 product prior to shipment.

## **US-SERIES PROFESSIONAL AMPLIFIER WARRANTY:**

B-52 warrants to the original purchaser that this US-Series Professional Amplifier will be free from defects in material and workmanship for a period of (3) THREE YEARS from the original purchase date. A dated sales receipt will establish coverage under this warranty. This warranty will automatically terminate (3) THREE YEARS after the original sales date. It is the owner's responsibility to establish date and place of purchase by acceptance evidence at the time service is being sought.

**THIS (3) THREE-YEAR** warranty does not cover service or parts to repair damage caused by accident, disaster, misuse, abuse, wear and tear, subjecting the unit to power in excess of its published rating, damage due to lightning or power surges, if the serial # has been altered or removed, inadequate packing or shipping procedures and service, repair or modifications to the US-Series Professional Amplifier which has not been authorized or approved by B-52 in writing. Parts supplied under warranty may be new or rebuilt at the option of B-52. This warranty is in lieu of all other expressed warranties. If this product is defective in materials or workmanship as warranted above, your sole remedy shall be repair or replacement.

This is not a service contract and this warranty does not include maintenance, cleaning or periodic check-up. B-52 reserves the right to make changes in design and/or improvements to its products without any obligation to include these changes in any products manufactured.

## **INCIDENTAL OR CONSEQUENTIAL DAMAGES:**

In no event shall B-52 be liable for any incidental or consequential damages arising out of the use or inability to use any B-52 product, even if B-52 or a B-52 dealer has been advised of the possibility of such damages, or any other claim by any other party. Some States do not allow the exclusion or limitation of consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal

rights and you may also have other rights that may vary from State to State.

## **PURCHASING FROM UNAUTHORIZED DEALERS:**

If this product was purchased from an unauthorized dealer there are no warranties, express or implied, including the implied warranty of merchantability and the implied warranty of fitness for a particular purpose and this product is sold "as is" and "with all faults".

## **RETURN PROCEDURES:**

In the event product repair is needed, follow the procedure outlined below. Contact B-52 (1-800-344-4ETI or 1-323-277-4100) from 8am to 4:30pm Pacific Standard Time, for the location of the authorized service center nearest you. Follow the service center's instructions regarding return of the product. In some instances B-52 may request that you return the product directly to B-52 for service or repair.

After speaking with a B-52 representative, you will be issued with a return authorization number (RA#) which you need to clearly label the returned merchandise with. If you are sending the product by common carrier, package it carefully and send it with transportation prepaid by traceable, insured method to B-52, or Authorized Service Center. Package the product using adequate padding material to prevent damage in transit. The original packaging is ideal for this purpose. Include your name, address, RAN #, copy of your receipt and telephone number where you can be reached during business hours.

## **FOR YOUR PROTECTION:**

Please complete and mail the Purchase Information Card within (10) ten days of the date of purchase so that we may contact you directly in the event a safety notification is issued in accordance with the 1972 Consumer Product Safety Act. In addition, we ask that you complete the brief questionnaire so we may analyze your answers and in this way, help us evaluate our customer needs.

## **CUSTOMER SERVICE:**

Our dedicated staff is ready to help you with any B-52 warranty or product questions you may have. Please call 323-277-4100 (9:00AM to 4:00PM Pacific Standard Time, United States).



THE BEAUTY OF POWER

**US SERIES AMPLIFIERS**

# NOTES



**B-52 PROFESSIONAL**  
**3383 Gage Avenue, Huntington Park, CA 90255**  
**Internet: [www.B-52Pro.com](http://www.B-52Pro.com)**  
**Ph: 323-277-4100 Fax: 323-277-4108**  
**Toll Free: 800-344-4384**

**B-52 Professional is dedicated to product excellence and therefore continuously attempts to improve each and every model we manufacture. This ongoing process includes refinements in design, materials and workmanship which may result in products which differ than those described in our literature. All features, specifications, prices and terms are subject to change without notice.**